JALIJBANG 2 AND THE DISTRIBUTION OF PECKED FACES IN AUSTRALIA

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Archaeological excavations at the Jalijbang 2 rockshelter, near Katherine, Northern Territory, show that in this area pecked faces and Panaramitee type peckings are unlikely to pre-date the mid-Holocene. These results, however, are unlikely to shed light on the antiquity of pecked faces elsewhere in arid and semi-arid Australia, for the Cleland Hills, Durba Hills, Dampier, Sturt Creek, and Jalijbang pecked faces appear to be regionally distinctive. It does, however, show that the so-called *Panaramitee* artistic style consists of a broad, highly generalised set of conventions which cannot be purely understood as of having great antiquity.□ *rock art, Wardaman, Northern Territory, Australian prehistory.*

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In a secluded sandstone gorge, 150km south-west of Katherine, N.T. (Fig. 1), are found a series of highly unusual engraved figures. When they were first observed by archaeologists during the mid 1980s, the figures were described as a minor but striking component of a broader regional body of rock art dominated by non-figurative and track peckings and figurative paintings (Lewis & McCausland, 1987). The figures themselves consist of four large anthropomorphs pecked into a near-vertical sandstone wall, three of which have their faces depicted (Figs 2-4). A further three pecked faces are located on nearby boulders (Figs 5 & 6). The site in which these occur is known as Jalijbang (spelled 'Jalikpany' by Lewis & McCausland, 1987) by the local Wardaman Aboriginal people. The pecked faces on the wall and boulders are all depicted in frontal view, and are reminiscent of the pecked faces from Cleland Hills (1000km to the south), which are commonly believed to be of great antiquity (Edwards, 1968). Lewis & McCausland (1987: 78), entertaining the idea of prehistoric inter-regional contacts between people from the Jalijbang region, Cleland Hills, and from other regions containing similar engravings, concluded that:

> 'whether or not there is any relationship between the Jalikpany figures and the complex anthropomorphic figures and/or face engravings elsewhere cannot, at this time, be determined.'

This paper is an attempt to address this issue and to investigate the antiquity of the Jalijbang figures. Furthermore, if the Jalijbang engravings can be shown to be closely related stylistically to the Cleland Hills engravings, then the antiquity of the former may shed light on the antiquity of the latter.

INVESTIGATING THE ANTIQUITY OF THE JALIJBANG PECKINGS

Jalijbang 2 is a small rockshelter with a high ceiling near the downstream end of a small gorge. The site itself has a curious setting in that it is bounded to the east by a vertical sandstone rock face, to the south by massive sandstone boulders (evidence of past roof-falls), and to the west and north by a seasonal creek. The creek bed itself consists of high quality ochre pebbles and quartzite and sandstone blocks. A small pocket of soft sediments has been preserved in the area bounded by the creek, the rock wall and the boulders, and this was made possible only because the boulders themselves protected it from the creek's northward waterflow during the wet season. Water rushes past the soft deposits at Jalijbang 2 during the wet season, detouring around the massive boulders, and flooding the pocket of soft sediments with quiet waters which deposit new silts during times of flood. It is in this protected pocket that archaeological sediments are found, preserved by the periodic addition of silts (Fig. 7).

The large boulders near the soft sediment contain numerous engravings. Most of these consist of abraded grooves and pecked bird tracks. But

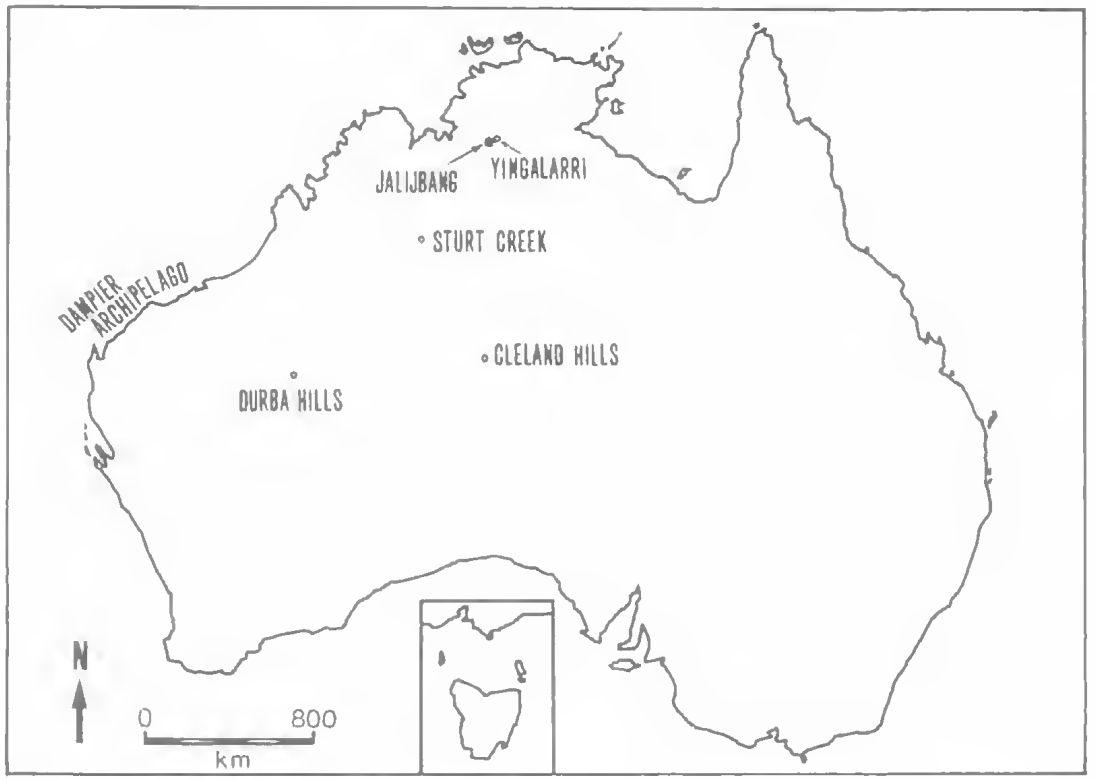


FIG. 1. Australia showing locations mentioned in text.

near the soft deposits, where the boulders meet the creek bed, lies a medium-sized boulder with a pecked face (Fig. 5). Two other pecked faces, as well as peckings of dingo-forms, occur on boulders in a rockshelter 20m upstream (Fig. 6). These boulders appear to be part of the massive sandstone boulder scree which begins at the upstream rockshelter, and end at the downstream end of Jalijbang 2. They are likely to have been deposited as a result of either instantaneous or prolonged roof-fall events.

The peckings on these boulders all occur on the boulder's upper or side surfaces (Fig. 8). None have been found on underlying boulders. Consequently, all of the boulder engravings are likely to post-date the roof-fall. Further, if the roof-fall itself was a prolonged event, then the engravings themselves were likely to have been undertaken after the *latest* episode of roof-fall, given that engravings only occur on the uppermost boulders. In excavating at Jalijbang 2, we therefore aimed at dating the roof- fall in order to obtain a maximum antiquity for the boulder engravings, which include three pecked faces (two of which occur in the upper rockshelter) reminiscent of the Cleland Hills pecked faces.

In July and August 1989, one of us (B.D.) undertook a small excavation at Jalijbang 2, immediately beneath the four pecked anthropomorphs which adorn the sandstone wall (Fig. 7). Sixteen juxtaposed 50cm × 50cm squares were excavated until compact sediments were reached, after which excavation of only four squares continued[1]. All materials were excavated in bucket spits following the natural stratigraphy (Johnson, 1979). Stone artefacts and other cultural materials greater than 2cm maximum dimension were recorded in three dimensions and bagged separately, as were all hearth stones.

Although the Jalijbang 2 sediments were well stratified, most of the individual stratigraphic laminations resulting from the alluvial deposition of silt could not be identified in situ, as variations in texture and colour were minimal.

[1]The surface sediments from the other 12 squares were excavated so that loose surface sediments would not fall into the main pit and contaminate older materials.

FIG. 2. Pecked anthropomorph located on a wall at Jalijbang 2.

FIG. 3. Pecked anthropomorph located on a wall at Jalijbang 2.

Five stratigraphic units were revealed from the excavation (Fig. 9):

Stratum 1: loose surface sediments. Fine tan-brown silts, extremely loose, containing small amounts of organic materials. Sediments are uniformly very fine.

Stratum 2: immediately underlies Stratum (SU) 1. SU 2 consists of a number of ashy and/or charcoal-rich lenses within a broader silt layer. These lenses are given separate identification (SU 2b, 2c and 2f), and most are spatially discontinuous across the excavation. SU 2 proper is a fine, silty sediment, finely laminated in some places, but the lamination was too indistinct to record except for sub-stratum 2a. The silts contain very small amounts of organic matter (including charcoal). Sediments are light tan-brown in colour. The separate sub-strata are:
SU 2a, being a 2mm thick lens of slightly darker silt;
SU 2b, a fairly well defined layer of grey ashy silt (poor in charcoal);
SU 2c, an extremely well defined charcoal concentration, containing burnt stones. It is very well defined in square E6 especially. In this layer were found the first evidence of pebbles (all burnt), many of which are fire cracked. SU 2c is black in colour, and is almost pure charcoal;
SU 2d, a fine gravel lens, with silty matrix around it. It is present in square E6, but it is ill-defined elsewhere;
SU 2e, a greyish orange silt;
SU 2f, an extremely well defined charcoal lens. It is very ashy and black in colour.

Stratum 3: extremely compact gravel and pebble layer, orange-brown in colour. Pebbles range in size from small (<1cm) to approximately 25cm maximum size. The pebbles and gravel making up SU 3 appear similar to the materials which currently make up the adjacent creek bed. The boundary between SU 2 and SU 3 is well defined.

Stratum 4: decomposing sandstone, mottled reddish yellow. Intersection with overlying SU 3 is ill-defined, spanning approximately 3cm.

Stratum 5: solid sandstone. This is the basal stratigraphic unit consisting of large boulders with relatively flat surfaces. Excavation could not proceed into or below Stratum 5 because of the size of the boulders.

Radiocarbon Dates

Two radiocarbon dates were obtained:

FIG. 4. Pecked anthropomorph located on a wall at Jalijbang 2.

a. 260± 60BP (New Age; Conventional Age is 250±60BP) (Wk-1551). This date is from a good charcoal sample from Square E6, XU 6, and dates the uppermost hearth excavated (SU 2e) (^{13}C permil = -26.6). This hearth is a well-defined charcoal and hearth stone lens which is assumed to have been created as an archaeologically instantaneous event.

b. 1040±60BP (New Age; Conventional Age is 1010±60BP) (Wk-1550). This dates the lowermost hearth (SU 2f), and comes from a good quality charcoal sample from Square F6, XU 10 (^{13}C permil = -26.0).

Occupation at Jalijbang 2

Human occupation at Jalijbang 2 began sometime before 1040±60BP. Low density deposition rates of stone artefacts are found throughout the deposits, although peak rates occur in association with the two hearths (around 260BP and 1040BP) (Table 1). Only two small fragments of bone were found (both in post-260BP times), whilst hearth stones and heat-shattered burnt rocks are associated with the uppermost hearth. Ochre occurs, but it is difficult to associate its presence with artistic activities, as the creek bed itself contains vast numbers of ochre pebbles, and periodic floods can be expected to deposit very small fragments of ochre with the deposited silts. Ochre pebbles were also used as hearth stones during use of the uppermost hearth. No in situ ochre fragments exhibit any signs of use wear (Appendix 1).

Although stone artefacts occur below the bottom hearth (1040±60BP), their numbers are very low. These low rates are associated with SU 3 and 4, the gravel and sandstone layers below the alluvial silts and hearths. The gravels themselves indicate the presence of creek flow in this section of the site sometime in the past (in pre-1040BP times), although the large boulders were present to the immediate south during that time (as indicated by the underlying SU 5 boulders in the excavations). An extension of the depth-age curve dates the uppermost surface of the in situ sandstone boulders (SU 5) to 2880BP, although the presence of a different stratigraphic unit between it and the dated silts (SU 2) means that this date is likely to be a very general indication only of the age of the roof-fall which resulted in the boulder deposit. Consequently, this extrapolated date should be used with caution, and is presented here as a very general indication only of the order of magnitude which we can expect the age of the roof-fall underlying the cultural deposits to be. It is not known if cultural materials occur below the boulders, as excavation could not proceed below them.

Other Dates

Two other independent sources indicate a mid- to late-Holocene antiquity for the end of the roof-fall expressed stratigraphically as SU 5:

1. On boulders located in a rockshelter 20m upstream from Jalijbang 2 (at Mennye-ya), a large, exfoliated boulder contains pecked dingoforms on its upper surface. These boulders were likely to have been deposited during the same roof-fall event(s) which resulted in the creation of the scree-slope at Jalijbang 2, and dated to approximately pre-2880BP by reference to the depth- age curve. As dingoes first arrived in Australia around 3500 years ago (Solomon & David, 1991), the peckings must have been undertaken sometime after that time. This does not mean that the boulders were necessarily deposited after this time, but does indicate that at least some of the art on them were done in mid-

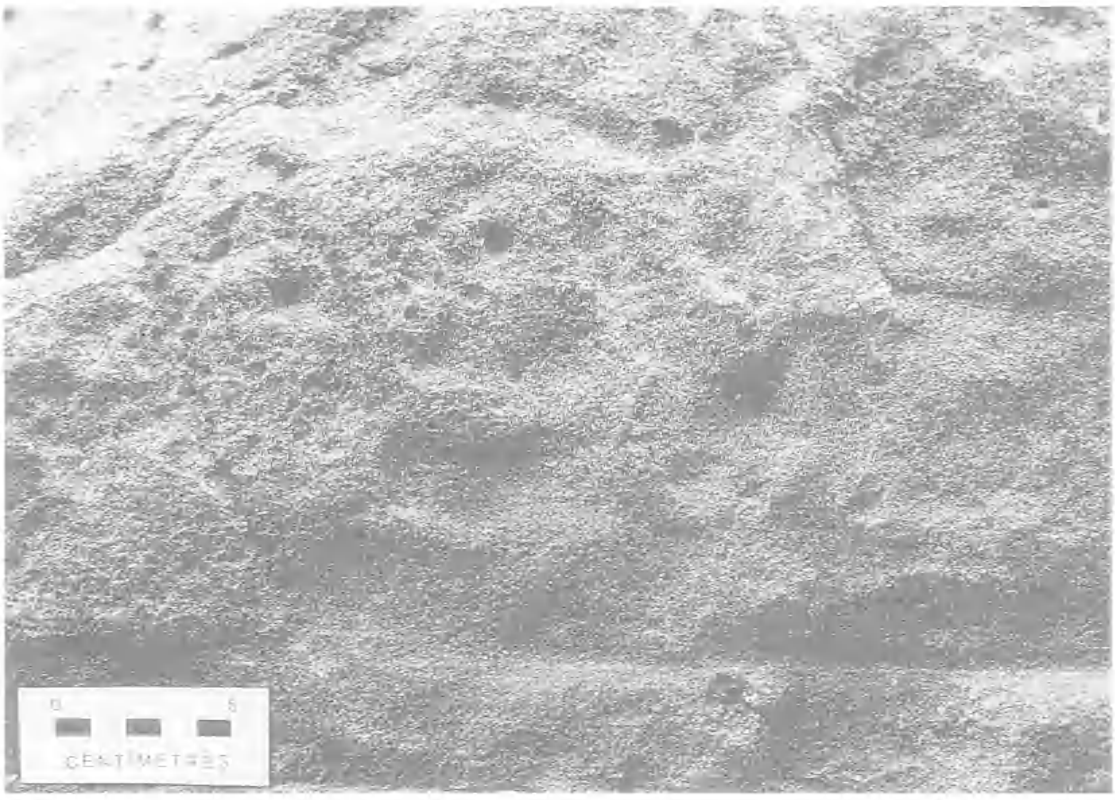


FIG. 5. Weathered pecked face from creek-bed boulder, Jalijbang 2 (see Fig. 7 for location of boulder).

TABLE 1. Deposition of materials, Squares E6 and F6. All rates are per m^2 per 100 years.

SQUARE	XU	1	2	3	4	5	6	7	8
E6	1-5	<0.1	15.5	3.6	0.1			0.22	1989AD–260BP
E6	6–8	195.3	15800.0	1750.0		300	24.5	411.2	260BP
E6	9–11	<0.1	31.8	3.3				0.45	260–1040BP
E6	12–22	<0.1	5.54	3.5				105.9	1040–2880BP
F6	1–3	<0.1	6.5	1.6				0.08	1989AD–260BP
F6	4	5.4	1600.0	40.0				8.8	260BP
F6	5–9	<0.1	34.4	30.1				4.0	260–1040BP
F6	10–11	185.6	1200.0	9680.0			99.6	1467.6	1040BP
F6	12–21	<0.1	1.3	1.1				10.5	1040–2880BP

1=CHARCOAL (KG). 2=LITHICS (#). 3=LITHICS (G). 4=BONE (G). 5=HEARTH STONES (#). 6=OTHER BURNT ROCK (KG). 7=RESIDUE (KG). 8=YEARS IN SPITS

to late-Holocene times. The other peckings on this and nearby boulders show a similar degree of patination (moderate to heavy) as the dingo peckings, indicating probable comtemporaneity.

2. A cortex sample was extracted from a nearby boulder by Alan Watchman (pers. comm., 1988). The cortex was examined by Watchman (1990), who found a thin, microscopic layer of organic-rich materials at its base. The organic materials were extracted and dated through AMS, where a date of 4010±300 was obtained (Watchman, 1990). As the sample came from near the base of the cortex, it dates the beginnings of cortex development, and hence when

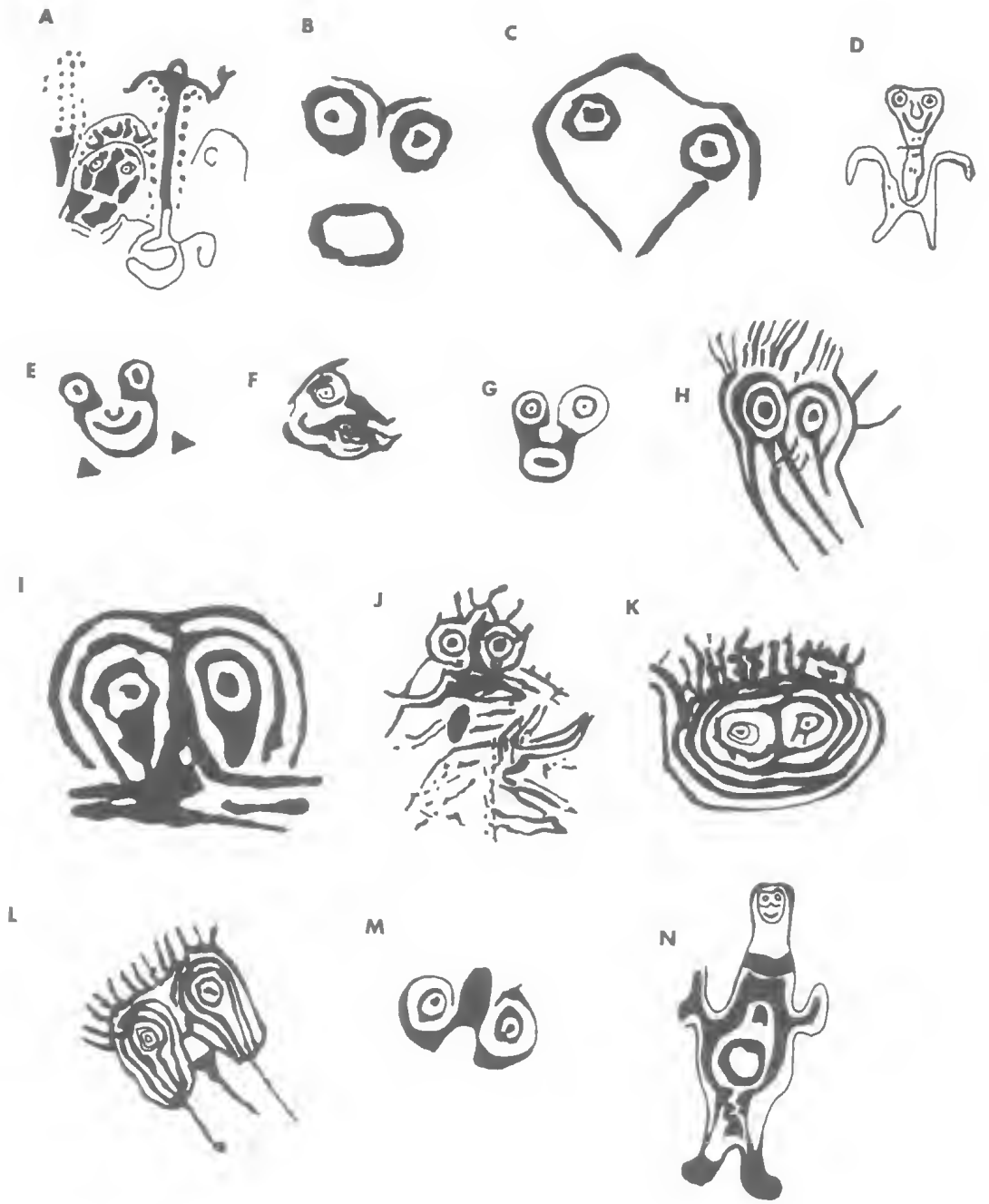


FIG. 6. Pecked faces. A, I-N=Dampier. B-C=Jalijbang boulders. D-G=Cleland Hills. H=Durba Hills. After Dix (1977) and Lewis & McCausland (1987).

FIG. 7. Plan of Jalijbang 2. Fine-dashed area is large boulder scree.

the boulder probably became exposed to the elements. 4010±300BP is therefore likely to represent the antiquity of the boulder's deposition to its current position.

Discussion of Antiquity of Boulders at Jalijbang 2

Three independent investigations all point to a mid- to late- Holocene antiquity for the end of the roof-fall which resulted in the massive boulder scree at Jalijbang 2. The in situ sandstone boulders located in the excavation were themselves tentatively dated to around 2880BP by extension of the depth-age curve. A major problem with this dating is that it assumes a steady sedimentation rate below the lowest radiocarbon date, and hence, by itself, the resultant chronology can only be taken as a general approximation at best. When compared to the cortex date (4010±300BP) and the presence of pecked dingo-forms on boulders from the adjacent scree deposits (post-3500BP), however, the depth-age calculation appears to be of the correct order of magnitude. The roof-fall at Jalijbang 2 appears to have ended around 3000 to 4000 years ago.

Antiquity of Pecked Faces

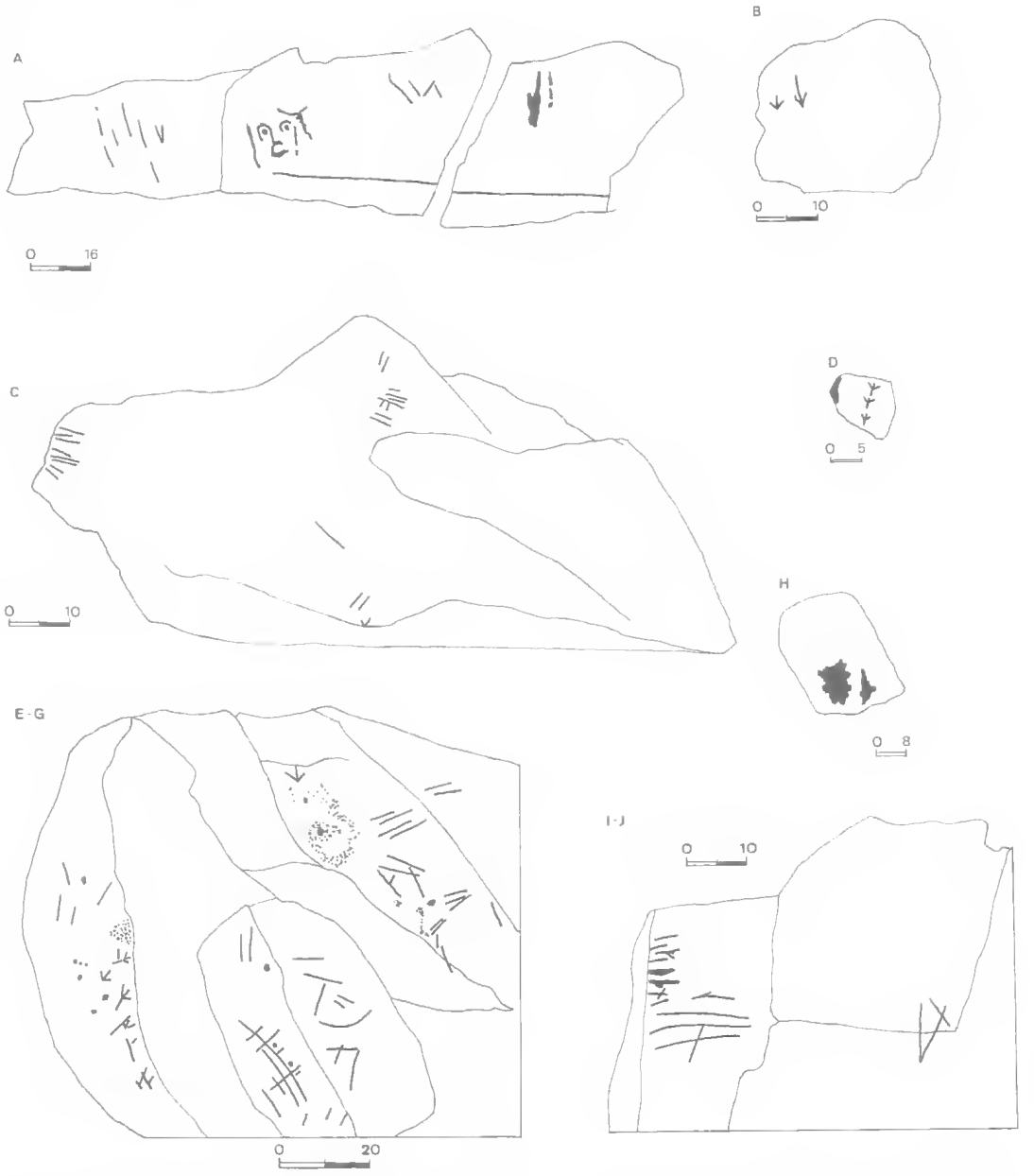
Given a likely mid- to late-Holocene antiquity for the end of the roof-fall at Jalijbang 2, it is also likely that the pecked faces and other engravings on the boulders are of a similar antiquity. The pecked face in the creek bed at the base of the boulder scree (Fig. 5) is also unlikely to pre-date the mid-Holocene as the annual waterflow in the creek can be expected to have obliterated the pecking were it to have greater antiquity. It is notable that during pre-3000BP times precipitation was significantly higher than at present, making it even more unlikely that this pecking would have survived (Chappell & Grindrod, 1983).

As all of the boulder engravings at Jalijbang 2 are located on the upper and side surfaces of the uppermost boulders only, it is also likely that all engravings post-date the *latest* episode of roof-fall (3000 to 4000BP). These engravings include pecked faces and bird tracks and abraded grooves.

The peckings on the rock wall, however, are much more difficult to date. It is possible that the roof-fall which terminated around 3000 to 4000 years ago resulted in the creation of the rock wall itself (and hence the peckings postdate this time), but it is also possible that the current rock wall existed before the roof-fall. If the former was the case, the peckings on the wall would be roughly contemporaneous with the boulder engravings. It is possible, however, that the wall engravings are older, although they possess similar patination to the adjacent boulder peckings (supporting general contemporaneity, although degree of patination can vary widely even within localised areas). In any case as will be shown below the boulder pecked faces are stylistically different from the wall ones, and therefore the antiquity of the former cannot be used to date the latter on stylistic grounds. In short, the boulder engravings probably date to the mid- to late-Holocene, whilst the antiquity of the wall engravings is unknown.

We investigate below the possiblity of determining the antiquity of other pecked faces from arid and semi-arid Australia by investigating stylistic distributions of pecked faces. We specifically ask the question, are the dated (boulder) pecked faces at Jalijbang 2 of a purely

FIG. 8. All of the abraded and pecked figures located on the boulders at Jalijbang 2. All scales are in centimetres. Continued on next page



local style, or are such faces found elsewhere also; if the latter, can the antiquity of the Jalijbang 2 faces reveal information on the antiquity of pecked faces elsewhere?

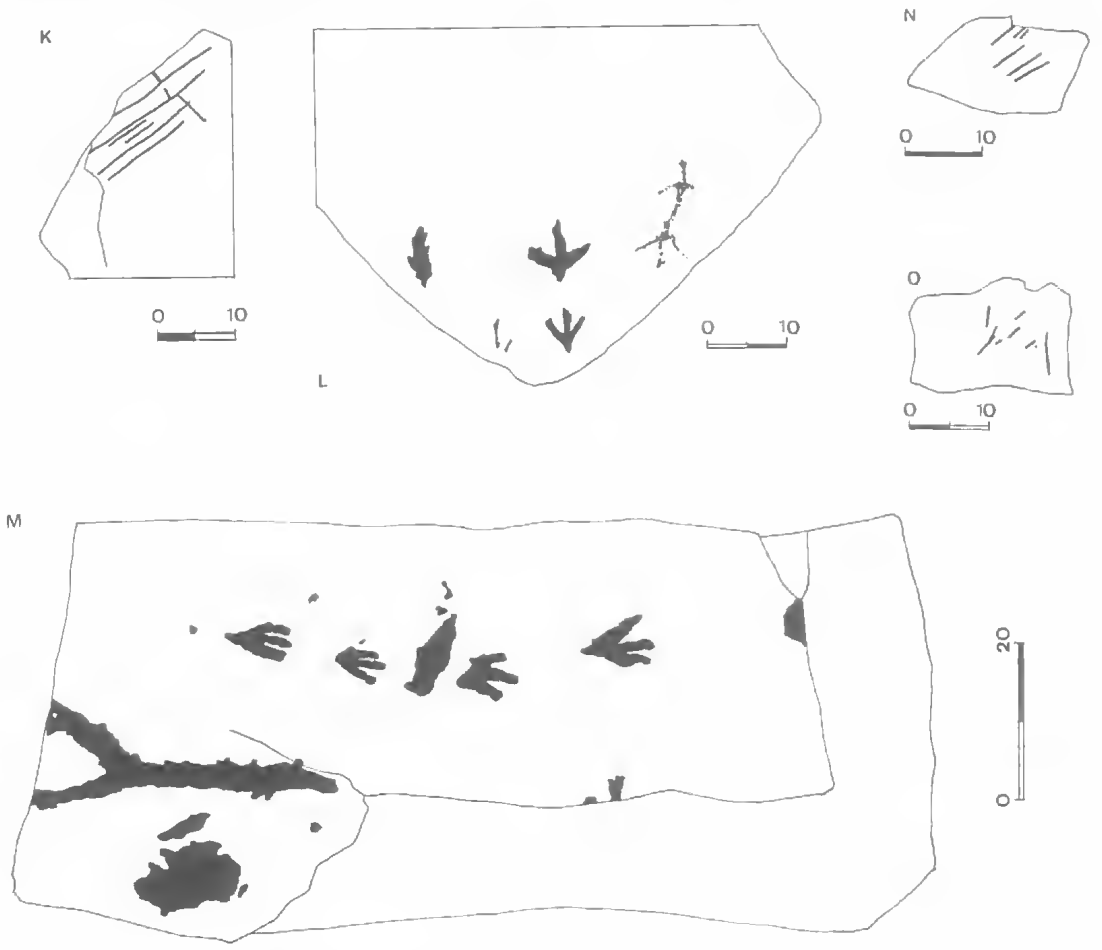
To address these questions, we undertake preliminary analysis of all published pecked faces from Australia which have a basic resemblance to those of Jalijbang.

THE REGIONAL OCCURRENCE OF PECKED FACES

Wardaman Country (Jalijbang and Yingalarri)

The pecked faces from Jalijbang can be divided into two groups, those on boulders and those on the wall. The three faces found on the

FIG. 8. Continued from previous page. All of the abraded and pecked figures located on the boulders at Jalijbang 2. All scales are in centimetres.



rock wall are very similar to each other: they all have concentric circles for the eyes, ears, noses, and broadly cylindrical outlined faces. They also have full or partial bodies. The faces pecked on boulders, however, exhibit neither bodies nor ears, and consist only of non-concentric eyes. Only one of the boulder pecked faces has a nose. The boulder faces are generally smaller than those located on the wall, and were created by a small number of separate, pecked lines (6, 7 and 7 for the boulder faces, compared to the 14, 20 and 26 lines that make up the pecked faces on the wall[2]). In short, the Jalijbang pecked faces can be divided into two distinct stylistic groups, the structurally complex wall faces, and the more generalised boulder ones.

A pecked face was also recently rediscovered by the authors at Yingalarri, 20km east of Jalijbang (and still within Wardaman country). This pecking (see Flood et al., in press), like the Jalijbang boulder ones, lacks the structural complexity of the Jalijbang wall peckings (see Table 2 for traits present).

Cleland Hills

Edwards (1968) reported on the occurrance of fifteen pecked faces from the Cleland Hills, 1000km south of Jalijbang. Of these, five figures are illustrated in his and subsequent reports (Edwards, 1968; Dix, 1977) (many of the others are badly weathered and difficult to distinguish). The Cleland Hills faces have been linked stylis-

[2] These numbers refer to the separate lines that make up the *faces* of each figure only.

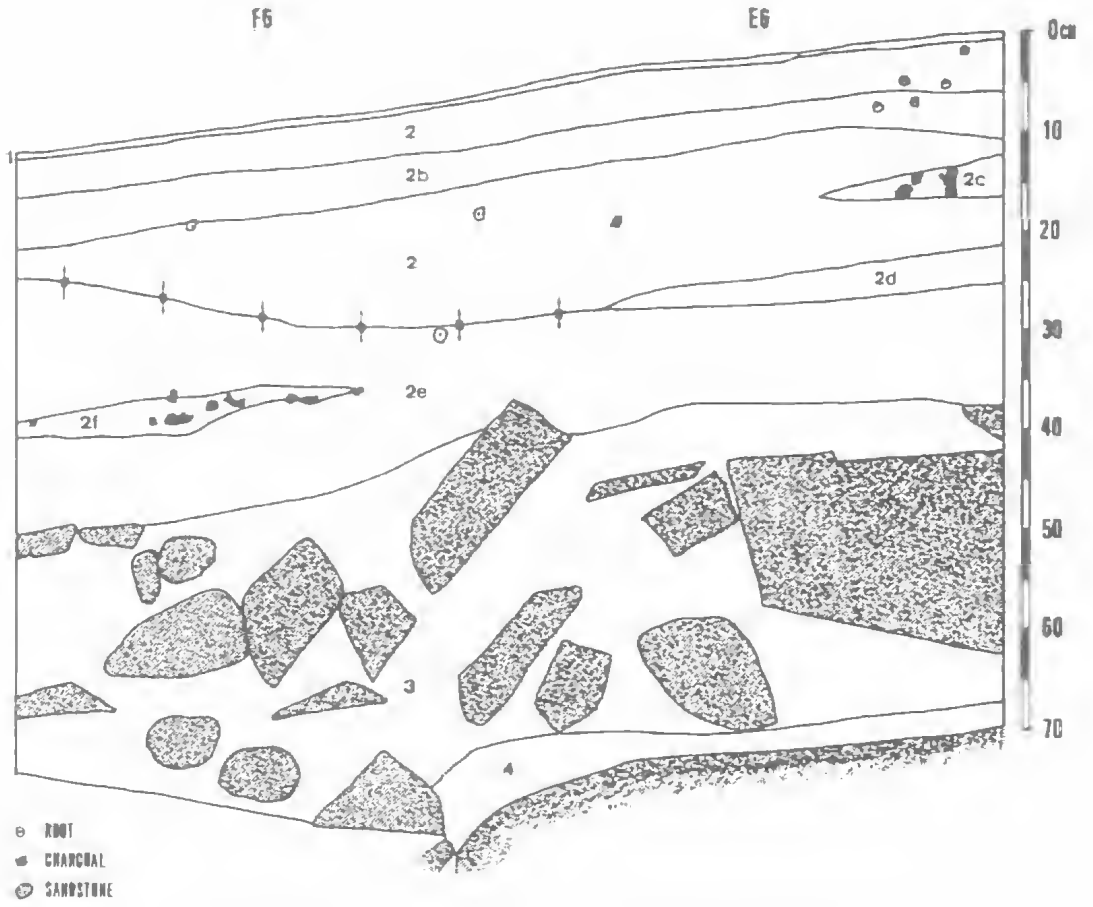


FIG. 9. Section drawing, Jalijbang 2.

tically to those from Jalijbang, Dampier, Sturt Creek and elsewhere (e.g. Dix, 1972, 1977; Lewis & McCausland, 1987), and have been considered to have considerable antiquity by virtue of their advanced state of patination. Yet the Cleland Hills faces contain a suite of characteristics not found in pecked faces elsewhere. These faces are generally pear- shaped or heart-shaped with noses depicted whilst their mouths are shown as straight or curved lines (at Jalijbang mouths on the wall faces are represented as single dots). Eyes consist of concentric circles, but unlike the Jalijbang wall faces, they were executed by a small number of separate pecked lines only (7, 8, 9, 10 and 10 for the five faces illustrated in Edwards, 1968 & Dix, 1977). We will return to these points below.

Dampier

The pecked faces from the Dampier region of Western Australia are relatively varied in style. One of their dominant features is the representation of hair on many figures, although this is not always so. Other characteristics are concentric circle eyes, and the enclosure of the head in an outline. The nose is sometimes represented, but ears are not and heads are never pear-shaped. The Dampier faces include figures created by numerous separate lines (up to 32) as well as some created by a few lines only (as few as seven). The former are more common.

Durba Hills

The Durba Hills (W.A.) face reported by Dix (1977) exhibits hair and concentric circle eyes, but nose, ears, body, and head enclosure are missing. It is reminiscent of the Dampier faces, and this is especially so of the hair and of the parallel lines below the eyes.

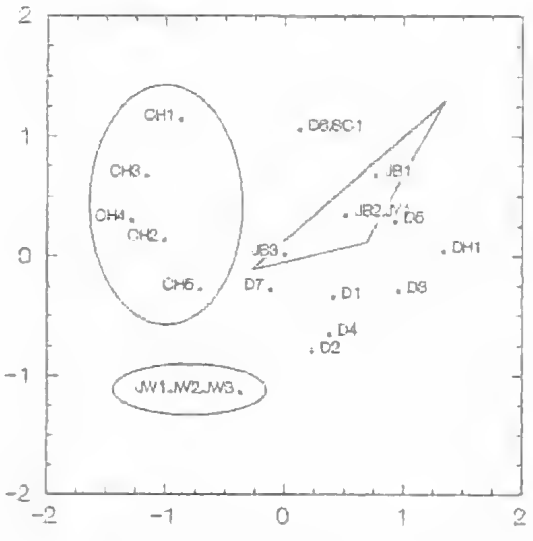


FIG. 10. MDS map based on eight qualitative variables.

STURT CREEK

The Sturt Creek pecking has, like the Cleland Hills faces, a linear mouth. The head is enclosed and attached to a full body (Crawford, 1968; Walsh, 1989). It is in this way reminiscent of the Jalijbang 2 wall peckings, although unlike the latter, it does not have concentric circle eyes, ears or nose.

REGIONAL VARIABILITY

The Jalijbang 2 boulder and wall pecked faces are stylistically different from each other, especially with respect to the presence or absence of concentric circle eyes, nose, ears, and associated bodies. Similarly, whilst the wall faces are composed of many separate pecked lines, the boulder faces contain considerably fewer lines (Table 3). The pecked face located on an exposed boulder at Yingalarri is stylistically similar to the boulder faces from Jalijbang 2.

To the south and southwest of Jalijbang, however, are found a number of pecked faces which, although superficially resembling the Jalijbang faces, are regional variations of the same theme (pecked faces). Such peckings are characteristic, although minor, components of some arid and semi-arid zone pecked assemblages. Since they are not found in more humid zones, their shared presence in arid Australia has often entertained the possibility of inter-regional interactions linking the places where they are found in a vast desert social network. But before this idea can be properly entertained, the presence of shared stylistic traits should be demonstrated. The presence of pecked faces in different areas, by itself, cannot be taken to signify a single artistic convention - pecked faces are not necessarily structurally complex endeavours, and only a limited number of traits (e.g. presence of eyes and head outline) are needed to make a picture resemble a face. In other words, the presence of non-essential lines (e.g. ears are not needed to make a face-form), and/or of particular combinations of features, are needed to be shared before two geographically separate bodies of pecked faces can be deemed to be represented by a single stylistic convention.

In examining the similarities and differences between the known pecked faces of Jalijbang, Yingalarri, Cleland Hills, Durba Hills, Dampier and Sturt Creek, we began by identifying whether certain traits were present or not. These traits are:

1. hair or head-dress;
2. nose;
3. ears;
4. linear mouth (as opposed to a dot or an enclosed area);
5. concentric circle eyes (a circle around a dot is not considered a concentric circle);
6. pear or heart shaped head;
7. head enclosed by an outline;
8. associated body.

The traits themselves were chosen to highlight stylistic variation. It was noticed that some traits were present in all pecked faces (e.g. eyes), whilst others were present in some only. The traits chosen specifically represent the major traits present in a number of peckings but not all of them. A Multi- Dimensional Scaling (MDS) statistic was subsequently undertaken to reveal how the separate faces cluster stylistically with each other, on the basis of the combination of the eight identified traits. Our main aim was to determine whether or not the faces from each region clustered together and, if so, did these clusters separate out conspicuously from the other regions.

The variables used in the MDS were the eight traits enumerated in Table 2. MDS is a set of mathematical techniques which enables the mapping of units (pecked faces) as points in geometrical space, reducing the number of dimensions (eight in our case) to two. It enables the user to locate the units in a spatial configuration - a 'map' (Fig. 10) (Alvey et al., 1982: 122). Ulsaner (1978: 5) writes: 'Once we have located the ... points in (multi-dimensional) space, we

TABLE 2. Traits present in the pecked faces analysed.

	HAIR	NOSE	EARS	LINEAR MOUTH	CONC. EYES	PEAR-SHAPED HEAD	HEAD ENCLOSED	BODY
1. JAL WALL		X	X		X		X	X
2. JAL WALL		X	X		X		X	X
3. JAL WALL		X	X		X		X	X
4. JAL BOULDER								
5. JAL BOULDER							X	
6. JAL BOULDER		X					X	
7. YINGALARRI							X	
8. CLELAND HILLS		X		X		X		
9. CLELAND HILLS		X		X	X	X	X	
10. CLELAND HILLS		X		X	X	X		
11.CLELAND HILLS		X		X		X	X	X
12. CLELAND HILLS		X			X	X	X	
13. DURBA HILLS	X				X			
I4. DAMPIER	X	X					X	
I5. DAMPIER	X	X					X	X
I6. DAMPIER	X				X		X	
I7. DAMPIER	X	X			X		X	
I8. DAMPIER					X			
I9. DAMPIER				X			X	X
20. DAMPIER		X			X		X	
2I. STURT CREEK				X			X	X

seek to determine the hidden structure, or theoretical meaning of this spatial configuration'.

The importance of MDS is that it provides a way of reducing the data to two dimensions. These two dimensions represent the 'hidden structure' of the data. Identification of key differences between the pecked faces was determined by identifying those that stand out or cluster together on the MDS map. To do this, statistical proximity values between units (pecked faces) are computed. 'The larger the dissimilarity (or the smaller the similarity) between two objects, as shown by their proximity values, the further apart they should be in the spatial map' (Kruskal & Wish, 1978: 7).

The results of the MDS shows a high level of regional clustering. As expected, the Jalijbang 2 wall and boulder peckings separate out. The Yingalarri figure, also located within Wardaman country, cluster with the Jalijbang 2 boulder faces. The Cleland Hills faces separate out well, as do the Dampier and Durba Hills faces. The Sturt Creek figure is similar to one of the Dampier figures, but all other pecked faces-are regionally discrete (Fig. 10). In short, the arid and semi-arid zone pecked faces consist of a series of regionally specific figures, differentiated by the presence or absence of particular traits. It is the combination of such traits which gives each region its stylistic particularity. Unfortunately, the published information and illustrations of these pecked figures do not reveal enough information to determine whether or not there are also regionally specific metrical differences. We have nevertheless briefly attempted to gather information on this question by quantifying the following:

a. the ratio of the distance between the eyes (taken from centre of eyes) to width of face at that plane;

b. the maximum width to height ratio (the former being at a parrallel to the eye plane, and the latter perpendicular to width);

c. the number of separate pecked lines making

TABLE 3. Quantitative data.

	DBE:FW	W:H	# OF LINES
1. JAL WALL	0.36	0.79	26
2. JAL WALL	0.39	0.77	14
3. JAL WALL	0.57	0.93	20
4. JAL BOULDER	0.53	0.84	7
5. JAL BOULDER	0.54	1.20	6
6. JAL BOULDER	0.41	0.87	7
7. YINGALARRI	0.36	0.57	8
8. CLELAND HILLS	0.64	0.93	7
9. CLELAND HILLS	0.50	1.00	10
10. CLELAND HILLS	0.55	1.00	t0
1t. CLELAND HILLS	0.56	0.90	9
12. CLELAND HILLS	0.45	1.20	8
13. DURBA HILLS	0.37	0.71	31
14. DAMPIER	0.45	0.63	25
15. DAMPIER	0.50	1.08	16
t6. DAMPIER	0.32	1.22	32
17. DAMPIER	0.52	0.78	28
18. DAMPIER	0.59	1.42	7
19. DAMPIER	0.30	0.45	8
20. DAMPIER	0.39	1.14	t3
21. STURT CREEK	0.47	0.79	t1

DBE=DISTANCE BETWEEN EYES. FW= FACIAL WIDTH . W=WIDTH. H=HEIGHT

up the faces (if a body is present, it is not included in the quantification).

The MDS undertaken on this data set does not reveal the distinct regional character revealed by the previous analysis (Table 3, Fig. 11). Nevertheless, the Cleland Hills faces separate out well from the other peckings, accentuating their regional specificity. Detailed quantitative analysis will have to await the availability of further quantitative data from each of the pecked figures.

DISCUSSION

The rock art located in Wardaman country, Northern Territory, is widespread and stylistically diverse. A very small component of the Wardaman rock art assemblage consists of pecked faces, some of which also have associated torsos. Within Wardaman country, the Jalijbang and Yingalarri pecked faces are superficially reminiscent of the Cleland Hills faces. These have often been infered to have considerable antiquity because of their stated advanced state of patination. Published photographs, however, show that some of these peckings are moderately patinated only (e.g. Edwards, 1968). In any case patination, especially of peckings in open sites, is not necessarily an indication of great age, as is testified by the existence of patinated post-contact graffiti. Similarly, the Jalijbang pecked faces have been claimed to be of considerable antiquity, but there is no strong reason to believe this is necessarily the case. On the contrary, the pecked faces found on boulders in Jalijbang 2 and in a nearby rockshelter (Mennye-ya) are likely to date to the last 3000-4000 years. Because these figures are stylistically distinct from pecked faces from other parts of arid and semi-arid Australia, however, their antiquity cannot in this way be used to infer the ages of pecked faces elsewhere.

Furthermore, the engravings found on the Jalijbang 2 boulders also include pecked bird tracks and linear designs and abraded grooves. Such peckings have often been characterised as typical components of the so-called Panaramitee engraving tradition. Such engravings are often believed to have considerable antiquity (e.g. Maynard, 1977), but at Jalijbang 2 they appear to have a maximum age of 3000-4000 years BP. Abraded grooves and pecked bird tracks, however, have also been found at the Yingalarri 1 excavations (Mulvaney, 1975), where they were dated to at least 5000BP. Abraded grooves are also known to have been created in the Jalijbang and Yingalarri areas during recent times (Flood

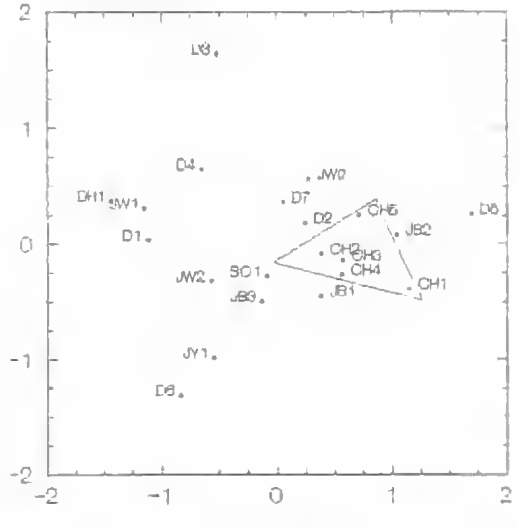


FIG. 11. MDS map based on three quantitative variables.

et al., in press). It is therefore likely that peckings and abraded grooves were part of a long artistic tradition in Wardaman country, spanning the period from pre-5000BP times to the ethnohistoric present. This pattern appears to be similar to that found by Nobbs & Dorn (1990) in the Olary region to the south, where cation-ratio dates revealed a broad range of non-figurative and track peckings spanning approximately 30 000 years of prehistory (but see Watchman, in prep.). In the Wardaman and Olary regions at least, the 'Panaramitee' (as defined stylistically by Maynard, 1977) has had a long history, broken only in recent times by the White intruders who constrained the local people access to the lands in which they engraved and painted.

In short, although some of the engravings found in Wardaman country have been dated to pre-5000BP times by Mulvaney (1975), there is no evidence that the pecked faces from Jalijbang 2 have any great age. Although their precise antiquity remains a matter for speculation, excavations at the site point towards a likely mid- to late-Holocene antiquity. We say this through circumstantial evidence only:

1. the occurrence of extensive roof-fall predating approximately 3000BP *may* indicate that the main, pecked wall at Jalijbang 2 did not exist before that time;

2. boulder peckings occur only on the upper and side surfaces of boulders believed to have been deposited in their current positions during the mid- to late-Holocene. Given the absence of peckings from the underneath surfaces, the peckings are likely to have been undertaken only after the boulders were deposited in their current positions;

3. the pecked face on the boulder in the creek bed at Jalijbang 2 has not been totally obliterated by water action, implying that it may not be of great antiquity;

4. other nearby peckings, also associated with the roof-fall boulders relating to points 1 and 2 above, contain peckings of dingoes, which because of their known antiquity in Australia must post-date approximately 3500 to 4000 years BP;

5. analysis of cortex on a boulder near Jalijbang 2 indicates that cortex development began approximately 4000 years ago. Because of its proximity to Jalijbang 2, it is likely that this boulder resulted from the same roof-fall activity as the boulders currently forming the scree-slope into the site itself (points 1 and 2 above), in support of a similar antiquity for the roof-fall itself (creation of the boulder surface where cortex development ensued).

Although the Jalijbang 2 boulder peckings (and wall peckings to a lesser extent) are more likely to be of mid- to late-Holocene age, it has not been possible to gain information on the antiquity of other, similar engravings from the Northern Territory and Western Australia. The latter are stylistically distinct from the pecked faces found in Wardaman country, with each area possessing regionally-distinctive pecked faces. These findings question the previously widely-stated belief that pecked faces from many parts of the Australian arid and semi-arid zones were similar and presenting material evidence for a broad, interactive social network which linked central Australia into a more or less unified 'desert culture'. On the contrary, this is nowhere reflected in the distribution of pecked faces which emphasise the regional specificity of artistic traditions in Australia's arid core.

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LITERATURE CITED

ALVEY, N., GALWEY, N. & LANE, P. 1982. 'An Introduction to GENSTAT'. (Academic Press: London).

CHAPPELL, J. & GRINDROD, A. (eds) 1983. 'CLIMANZ: Proceedings of First CLIMANZ, February 1981'. (R.S.Pac.S., A.N.U.: Canberra).

CRAWFORD, I.M. 1968. 'The Art of the Wandjina'. (Oxford University Press: Melbourne).

DIX, W. 1972. Rock art along the stock route. Hemisphere 16(7): 18-25.

1977. Facial representations in Pilbara rock engravings. Pp. 277- 285. In Ucko, P.J.(ed.), 'Form in Indigenous Art'. (A.I.A.S.: Canberra).

EDWARDS, R. 1968. Prehistoric rock engravings at Thomas Reservoir, Cleland Hills western central Australia. Record of the South Australian Museum 15(4): 647-670.

FLOOD, J., DAVID, B. & FROST, R. in press. Dreaming into Art. In Morwood, M. (ed.), 'Eth-

nography and Art' (preliminary title). (A.A.S.: Canberra).

JOHNSON, I. 1979. The getting of data. (Unpublished PhD thesis, Australian National University, Canberra).

KRUSKAL, J.B. & WISH, M. (eds) 1978. 'Multidimensional Scaling'. (Sage Publications: Beverley Hills).

LEWIS, D. & McCAUSLAND, B. 1987. Engraved human figures and faces from Wardaman country, eastern Victoria River district, Northern Territory. Australian Aboriginal Studies 1987(1): 67-79.

MAYNARD, L. 1977. The archaeology of Australian Aboriginal art. Pp. 83-100. In Mead, M.S. (ed.) 'Exploring the Visual Arts of Oceania'. (University of Hawaii Press: Honolulu).

MULVANEY, D.J. 1975. 'The Prehistory of Australia'. (Penguin: Ringwood).

NOBBS, M. & DORN, R. 1990. Age determinations for rock varnish formation within petroglyphs. Rock Art Research 5(2): 108-46.

SOLOMON, S. & DAVID, B. 1991. Middle Range Theory and actualistic studies: bones and dingoes in Australian archaeology. Pp. 234-256. In Solomon, S., Davidson I. and Watson D. (eds), 'Problem Solving in Taphonomy' Tempus 2: 234-56 (Anthropology Museum, University of Queensland: Brisbane).

ULSANER, E.M. 1978. Editor's Introduction. Pp. 5-6. In Kruskal & Wish (1978).

WALSH, G. 1989. 'Australia's Greatest Rock Art'. (E.J Brill/R. Brown & Associates: Bathurst).

WATCHMAN, A. 1990. What are silica skins and how are they important in rock art conservation? Australian Aboriginal Studies 1990 (1): 21-29.

in prep. An assessment of cation-ratio dating. (Unpublished report. A.I.A.T.S.I.S.: Canberra).

APPENDIX 1
List of materials excavated from Jalijbang 2.

SQUARE E6												
XU	1	2	3	4	5	6	7	8	9	10	11	SU
1	<0.1			2.2						0.25	0.2	1
2	2.4			6.8		28				0.25	3.6	2+2B
3	17.0	5	0.3	42.2		1				0.25	3.5	2+2B
4	2.9			26.2		<1				0.25	1.4	2
5	9.1	7	2.3	4.8	0.1	10	0.1			0.25	1.9	2C
6	91.5	49	14.7	4.4		440		1		0.25	3.2	2C
7A	219.6	9	0.8	7.8		1		2	245	0.12	3.7	2C
7B	2.1			0.5						0.13	3.7	2
8	3.5	5	0.1	4.5						0.05	2.7	2C
9	12.0	11	1.0	2.9		140	0.5			0.25	3.8	2D
10	9.1	46	5.3	13.2		66	0.3			0.25	2.8	2E
11	11.7	5	0.2	36.8		377				0.25	3.6	2E
12	6.1	5	9.8	25.6		333				0.25	2.5	2E
13	1.8	5	2.9	27.0		500	0.1			0.25	2.5	2E
14	0.7	3	0.6	1.1		200	0.1			0.16	3.6	2E
15	1.2	6	1.1	37.6		3000				0.25	3.3	3
16	0.1			0.6		1800				0.24	3.0	3
17	0.1			0.4		1900				0.19	5.6	3
18				0.1		1500				0.19	4.0	3
19		1	0.2	0.1		3000				0.19	4.3	3
20	<0.1	2	0.2	1.0		3500				0.22	2.7	3
21	<0.1	1	1.1			1500				0.21	4.7	3

APPENDIX 1 cont.

SQUARE F6												
XU	1	2	3	4	5	6	7	8	9	10	11	SU
1	<0.1			2.9							0.1	1
2	7.0	4	0.8	10.5							4.6	2
3	8.0	1	0.4	23.4							2.0	2B
4	13.6	4	0.1	19.5							3.3	2+2C
5	3.7	23	2.1	4.3							2.4	2
6	3.5	9	51.0	2.5							3.1	2E
7	7.2	9	0.3	3.5							4.5	2E
8	6.1	18	2.7	6.9							4.3	2E
9	13.0	8	2.5	2.5							2.7	2E
10	453.1	2	23.1	1.0			0.2		249		3.4	2F
11	10.8	1	1.1	0.3							2.8	2E+2F
12	2.4	1	0.1	49.0							2.5	3
13	0.4	5	5.1	13.7							4.5	3
14	0.2			21.0							2.9	3
15				55.7							4.6	3
16				31.5							2.4	3
17	<0.1			20.5							4.2	3
18				7.0							4.7	3
19				8.9							4.6	3
20											2.8	3
21	<0.1			0.2							4.3	4
SQUARE E7												
1				2.9							0.1	1
2	0.7			8.5	0.3						3.0	2
3	1.5			17.2							3.6	2
4	9.5	14	8.2	5.9					38.1		3.8	2
5	37.1	9	3.8	13.7				3	48.2		2.1	2
6A	107.1	21	1.3	2.3				3	1016.9		4.9	2C
6B	6.1			10.1			0.1		14.4		4.9	2
7	4.7	1	3.0	0.8					22.7		2.6	2C
8	5.5	3	0.5	9.3							3.6	2
9	21.7	4	6.9	10.6							3.8	2
10	14.3	4	1.1	1.6					26.7		2.5	2F
11	11.8			1.4					122.4		0.9	2F
12	3.1	4	2.4	5.9							1.8	3
13	0.1	3	3.2	0.1							5.7	3
14	0.1	1	0.7	0.1							2.8	3
15				0.6							5.0	3
16		1	3.0	0.1							4.5	3+4
17				0.1							2.7	4

APPENDIX 1 cont.

SQUARE F7												
XU	1	2	3	4	5	6	7	8	9	10	11	SU
1	0.1			0.6							0.1	1
2	0.5			4.0							3.6	2+2A
3	1.0	7	0.4	16.2							3.9	2+2B
4	3.2	9	23.6	6.5			0.1				5.1	2
5	2.9	8	1.4	3.1							3.9	2E
6	4.4	3	0.1	7.0			0.1				4.0	2E
7	1.1			3.0							1.2	2E
8	52.1	9	1.1	20.6			<0.1				2.5	2E
9	2.0	1	<0.1	7.3							3.2	2E
10	366.1	10	204.1	16.0			0.2	5			3.7	2F
11	302.6	2	2.9	6.6							3.8	2F
12	9.4	1	77.3	4.7							2.6	2E
13	0.1	4	2.6	22.6							4.3	3
14	<0.1	3	1.3	1.0							4.5	3
15	<0.1			0.5							3.6	3
16		1	1.8	0.2							3.6	3+4
17	<0.1			0.1							2.2	4

PERIPHERY SQUARES									
SQUARE	XU	1	2	3	4	7	12	13	SU
D4	1	0.4			5.7		1	<0.1	1
D5	1	0.1			1.8				1
D6	1	<0.1			1.9				1
D7	1				0.4				1
E4	1	1.4	1	<0.1	7.2	0.1			1
E5	1	0.1			5.0				1
F4	1	5.5			66.2		2	<0.1	1
F5	1	0.1			1.7				1
G4	1	1.5			5.5				1
G5	1	1.1			4.8				1
G6	1	0.6	2	0.3	8.0				1

1=CHARCOAL (G). 2=LITHICS (#). 3=LITHICS (G). 4=OTHER ORGANICS (G). 5=BONE (G). 6=OCHRE (G) (NOTE DATA PRESENTED FOR E6 ONLY). 7=$CaCO_3$ ROOTS (G). 8=HEARTH STONES (#). 9=OTHER BURNT (HEAT-SHATTERED) ROCKS (G). 10=AREA EXCAVATED (M^2) (NOTE DATA PRESENTED FOR E6 ONLY). 11=MEAN THICKNESS OF XU (CM) (NOTE DATA NOT PRESENTED FOR PERIPHERY SQUARES). 12=LAND SNAILS (#). 13=LAND SNAILS (G).